NxTest IPT Status

13 March 2006 AMB Meeting

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for

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Tasking Overview

- Joint Test Technology Demonstrations
  - Work joint test technology demonstrations
  - "Quartz Watch Days" – last held in July '05
  - Sponsor Ind/Gov technical working groups

- Joint System-Level Demonstration – ARGCS ACTD
  - Mature and validate Framework standards
  - Mature test technologies
  - Demonstrating solutions to help our DoD ATS goals:
    - "Interoperability"
    - "Reduced Footprint"
    - "Reduced Ownership Costs"
    - "Net-centric/improved diagnostics"
  - Facilitating Services ATS modernizations starting in the FY08 timeframe

NxTest Efforts Since Last Met

- Quartz Watch Day Progress

- CTI Working Group

- ATML Working Group

- EO IVI Working Group

- Smart TPS

- MPETS

- SI WG

QUARTZ WATCH Participating Companies

- TERADYNE
- JNR ASSOCIATES
- BOEING
- LOCKHEED MARTIN
- AGILENT
- PHASE MATRIX
- HONEYWELL
- VXI
- MATHWORKS
- NATIONAL INSTRUMENTS
- EADS
- RACAL
- GMA
- ACQIRIS
- BAE
- AEROFLEX
- HUNTRON

- DIAGNOSYS
- ATTI
- MACPANEL
- PICKERING TEST
- RIDGETOP
- SEI/PCA
- KEPCO
- HERLEY-CTI
- GEOTEST
- ABSOLUTE ANALYSIS
- METRIKOS
- ANRITSU
- AAI
- SYSTEM INTERCONNECT TECH
- HAMILTON SUNSTRAND
- VEXTEC
- AND MORE………….

Common Test Interface (CTI) Working Group

- CTI is an ATS Framework Critical Element

- 27 Companies and all services are participating

- Introduced into IEEE (SCC20) process for formalization
  - IEEE P1505 standard is being utilized with augmenting Pin Map
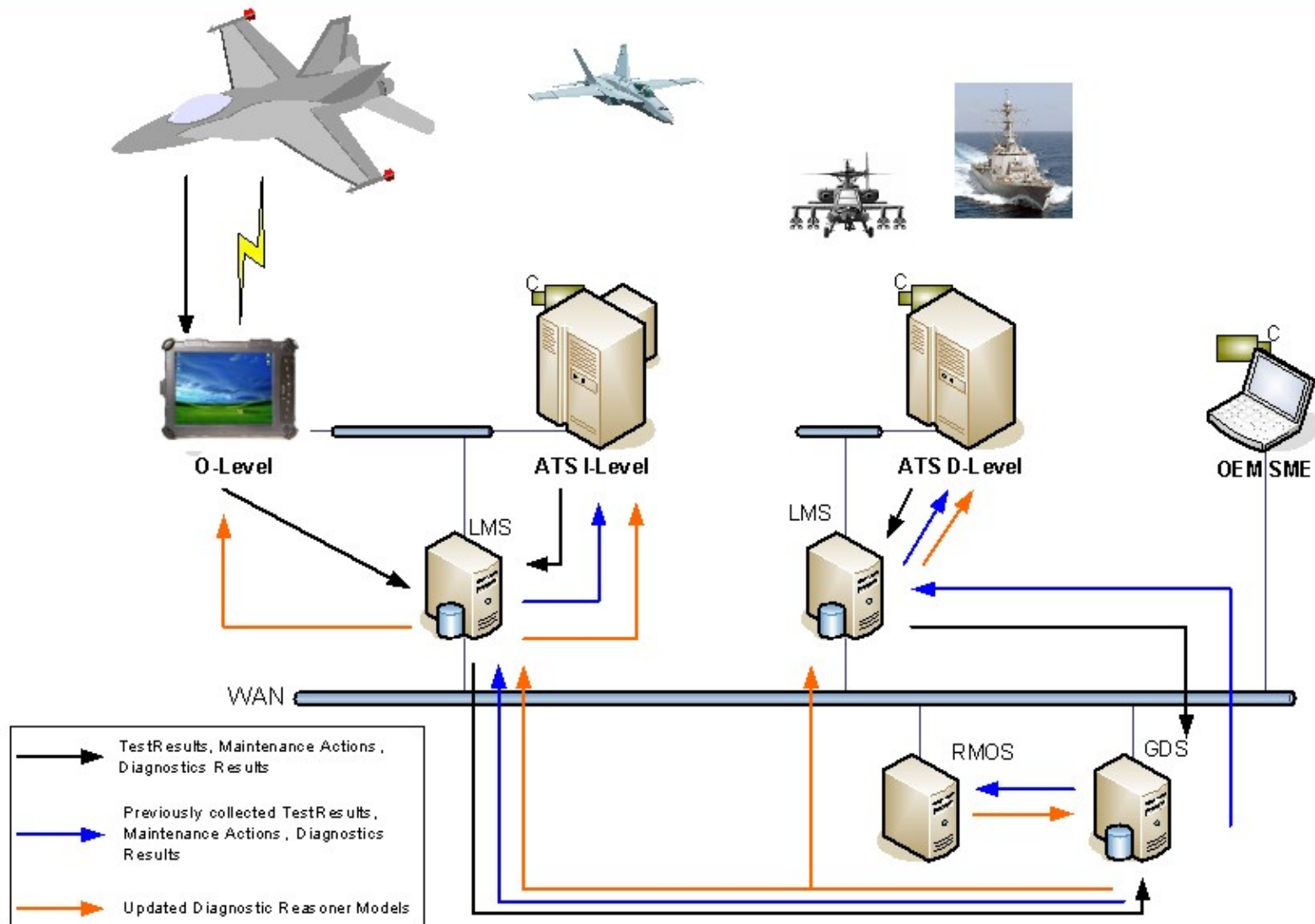
- Suitability testing of P1505 hardware ongoing

Automatic Test Markup Language (ATML) Working Group

- ATML affects several ATS Framework Critical Element

- 23 companies and all services are participating

- Have been focused on relevant Transportability and Closed Loop Diagnostics Interfaces

- Being inserted into both military and commercial SW

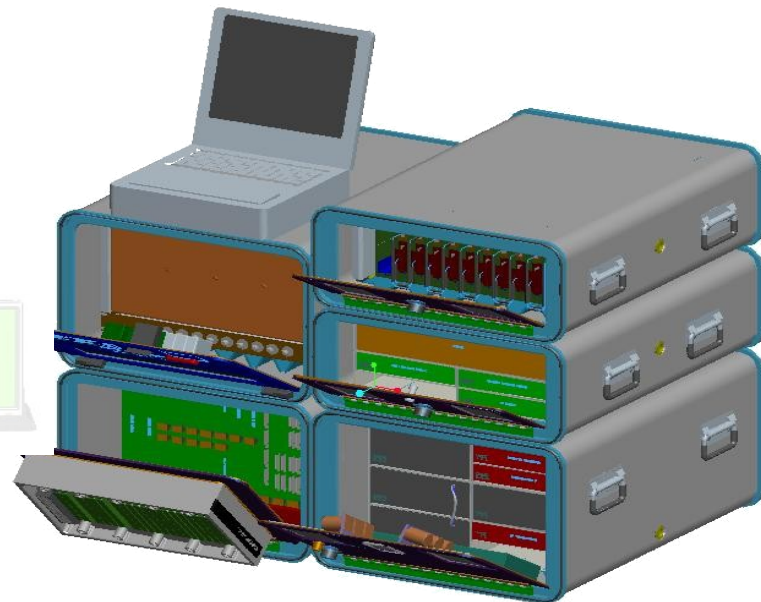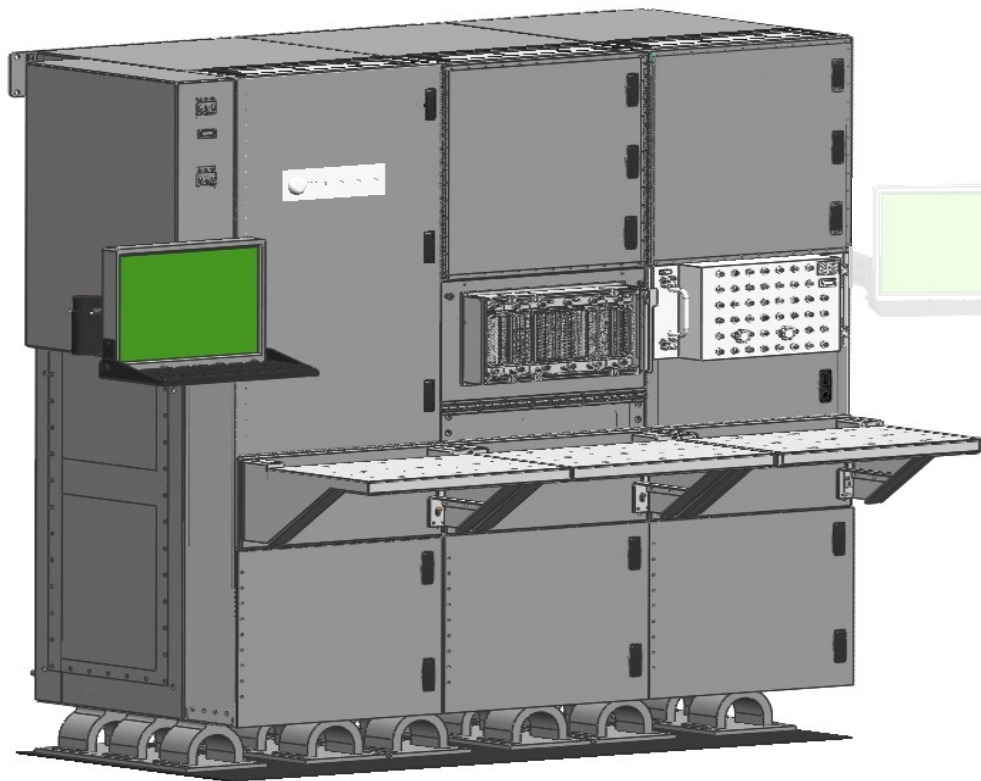- In finalization via IEEE SCC20 Standards

Current Test Technology Investments (getting ready for next gen ATE)

- Advanced E-O test capability

- High Speed Serial Bus capability

- Link 16 Test Technology

- Advanced Synthetic Instruments

- Improved ATE and TP Software

- Common Tester Interface (CTI)

- High Density Analog Instrument

- "Smart TPS" concepts

- ATML TPS conversion tools

ARGCS Net-Centric Diagnostic Capability

O-Level

ATS I-Level

ATS D-Level

OEM SME

LMS

LMS

WAN

RMOS

GDS

TestResults, Maintenance Actions, Diagnostics Results

Previously collected TestResults, Maintenance Actions, Diagnostics Results

Updated Diagnostic Reasoner Models

ATS #1 and ATS #2

- Compact Modular Design
- Full RF Synthetic Instrumentation
- Modular AC & DC Power and Load Design
- Synthetic Analog Instrumentation
- NextGen Digital Subsystem
- Full CTI Compliant Interface
- Modular Switch Solution
- Wireless System Interface

ARGCS ACTD Demonstration

- ARGCS ACTD Demonstration Platforms
  - **Navy F/A-18 C/D** (APG-65 Radar & Roll, Pitch & Yaw Computer) and **E-2C (**Signal Data Converter, Gear Box Oil Press Indicator, % RPM Indicator)
  - **Air Force F-15 E** (APG-70 Radar, Flight Control Computer, Avionics Interface Unit #1 and #2)
  - **USMC LAV-25** (Gun Control Logic) & MRC-142 HF Radio
  - **Army Paladin** (Fire Control), **Apache** (Digital Display, Signal Digital Converter) & **M1A1/A2** (CIRE)

- One Navy unit and one USMC unit will be delivered
  - All LRU/sWRAs will be demonstrated on Navy unit
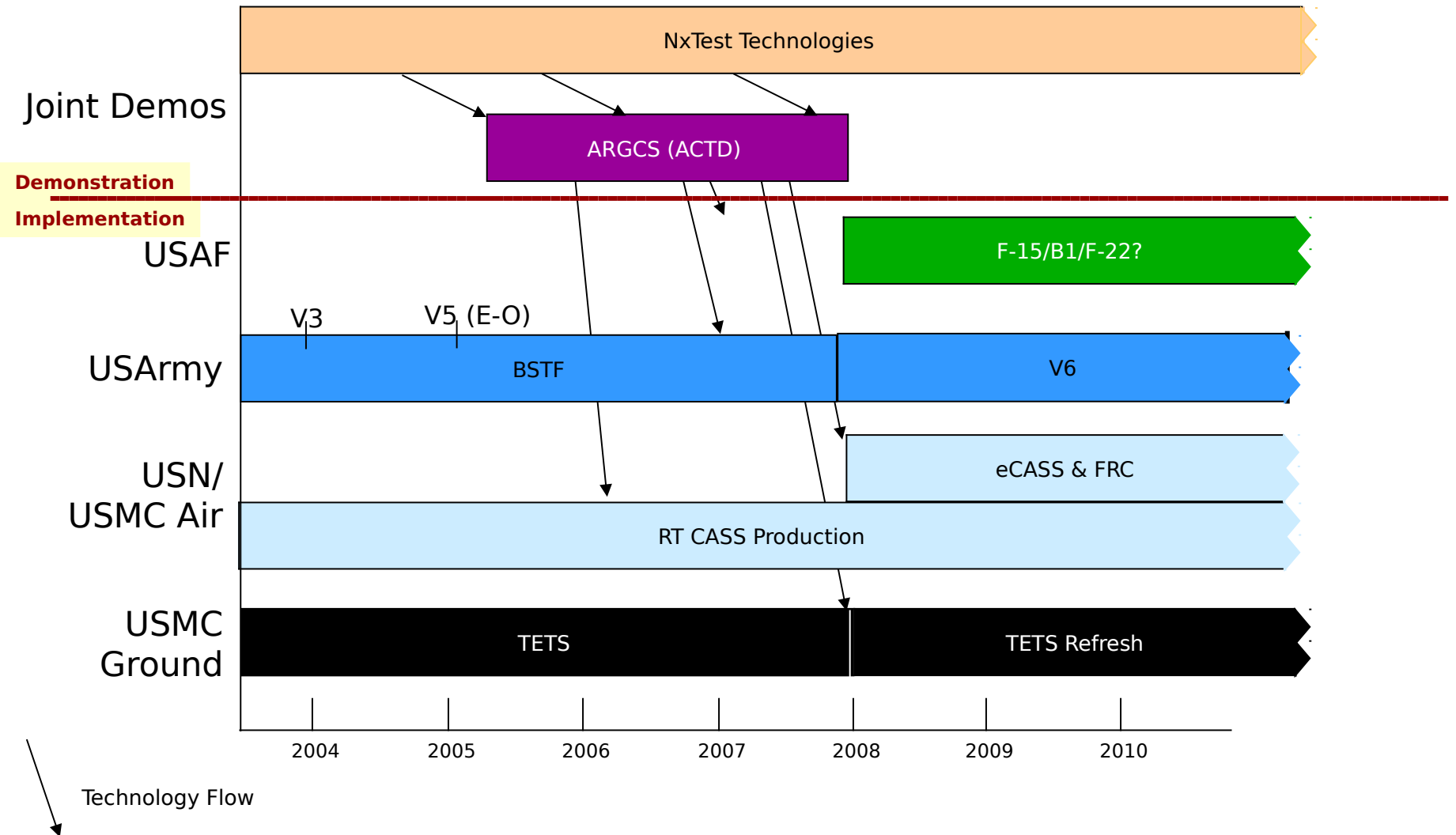 - Limited demonstrations on scaled-down USMC unit
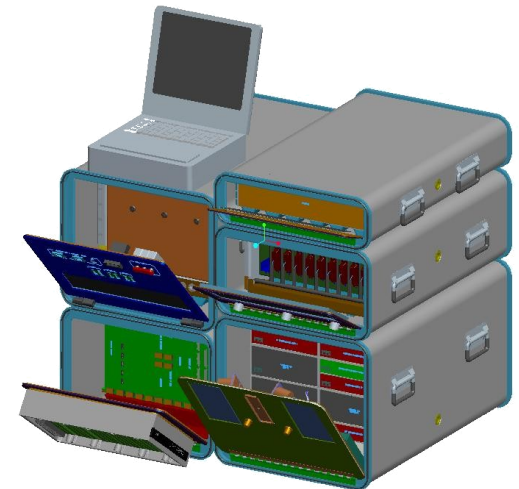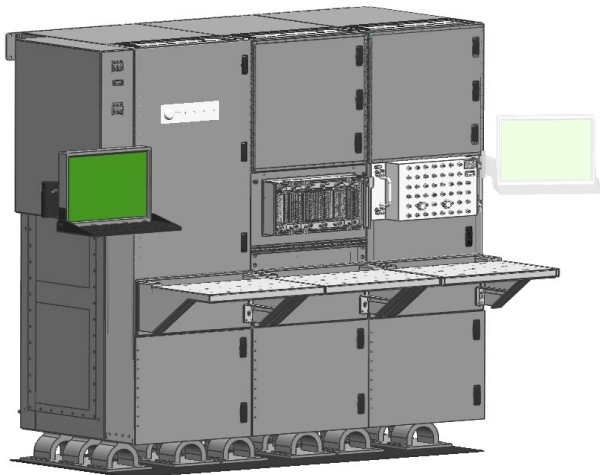
Early Technology Introduction

- CTMA/F15 ARGCS Technologies early fielding

- USMC Air RTCASS/ARGCS Technology early fielding

- USMC Ground TETS/ARGCS Technology early fielding

- Early Institution of system wide data collection and centralization (DB)

- JSF Early fielding of ARGCS Technologies

- Lockheed Martin Institutionalization of ARGCS Architecture

- Possible insertion of Architecture in AF Procurement (Dempsy)

- Targeted for '08/9 Naval Air eCASS Procurement

Key Events

- Reviewed draft Conops/Test Plan and updated OSD last week

- H/W assembly nearly complete

- Integration – this summer

- Delivery – December

- LUMA1 – March 07

- LUMA2 – May 07

- JUMA – start Sept 07

ARGCS Technology Implementation

Joint Demos

NxTest Technologies

ARGCS (ACTD)

Demonstration

Implementation

USAF — F-15/B1/F-22?

USArmy — V3, V5 (E-O), BSTF, V6

USN/ USMC Air — eCASS & FRC, RT CASS Production

USMC Ground — TETS, TETS Refresh

2004 2005 2006 2007 2008 2009 2010

Technology Flow

Summary

- Holding schedule after a 6 month slide last Fall

- Holding cost but have been short from the start

- Project is well supported by all of the services

- Executing early fielding of some ARGCS Technologies

- Strong support from the Warfighter/OM

- Industry Cooperation still remains strong

- Exposing additional needs within the services

DoD ATS Framework vs ARGCS Architecture

- Definitions are not interchangeable; two different things

- The **DoD ATS Framework** is an evolving set of standards required for an ATS Open System approach that when implemented by our DoD ATS Families will:
  – reduce the cost of ownership of ATS, improve Joint Service interoperable ATS, reduce logistic footprint, and improve quality of test.

- The **ARGCS Architecture** is an element of the ARGCS ACTD and is:
  – Helping to mature or validate some of the emerging DoD ATS Framework standards before they are mandated via the DISR (i.e., CTI and ATML).
  – Demonstrating and maturing some emerging test technologies (i.e., DI and PS) and improve diagnostics approaches (smart net centric diagnostics)

- How used?
  – The mature **DoD ATS Framework** standards and formally documented in the DISR will be specified as requirements in our acquisition contracts
  – The concepts and test technologies demonstrated within the **ARGCS Architecture** will be an element of the competitive market place and the systems engineering processes

Preparing for the Next Generation ATE

Next Gen ATE

Contract Requirements

Standards

Market Place/
Systems Eng Process

DISR

**DoD ATS
Framework**

Maturing Standards

**Specific Test
Technology
Development/
Demonstration**

Maturing
Standards

Maturing
Test
Technology

- Standards Bodies
- Gov't/Industry WGs

**ARGCS System
Level Demo
(ARGCS Architecture)**

- Services Test Rqmts
- Net-centric Ready Rqmts